

### **Outfall 002A – TCE Exceedance in February 2016 and Plan of Action**

The TCE concentration in the sample from outfall 002A (groundwater infiltration) was 6.7 ppb this month, compared to a permit limit of 5 ppb.

We believe the reason for this exceedance is that infiltration of groundwater containing TCE was occurring just downstream of the 002A sampling point. Just downstream of 002A, the discharge pipe is suspected to be open to groundwater as it passes under the railroad tracks. This was discovered with a visual inspection utilizing a water-proof mountable camera. We suspect that backflow from the railroad support structure (open bottom arch) through the 002A sample location could be occurring due to the lack of an enclosed outfall pipe. If this is occurring, the current 002A sample location would not solely represent treated water, during dry-weather conditions and assuming no breakthrough from CB-87R, as intended.

The reasons for this conclusion are as follows:

1. The measured flow for 002A at the time of sampling (2/15 at 11:20 AM) was 118,743 gallons per day (82 gallons per minute). During that time frame, the effluent (002B) flow meter readings ranged from 81 gpm to 84 gpm. During dry weather conditions, when the storm sewer collection system is designed to collect all flow upstream of it, the flows for 002A and 002B should be equal, and it appears that they were equal, within the accuracy of the flow measurements. In other words, no storm drain flow appears to have been bypassing the collection system.
2. The TCE concentration in the shallow overburden groundwater in the vicinity of outfall 002A is in the range of 5 to 20 ppb, based on sampling events performed for MCP site monitoring purposes. Groundwater that infiltrates downstream of the collection system would be expected to have similar TCE concentrations.
3. When the weather is dry, and the treatment plant effluent tank is not discharging, it has been observed that stagnant water is present in the vicinity of outfall 002A, suggesting that groundwater infiltration is occurring here.

The following actions are planned to attempt to confirm this conclusion by more data collection, given the uncertainty in the accuracy of flow measurements (also reference attached figure):

1. Install a float switch on the downstream side of the retaining baffle in CB-87R
  - a. This will notify the operator if preventable bypass is occurring, allowing him to act quickly to correct the issue.
  - b. This will provide valuable information (frequency, seasonal variation, duration, etc.) for better understanding unavoidable bypasses (i.e. during a storm condition, or possibly when dry-weather flow is in excess of the current capacity of the collection and treatment system, as could occur during occasions of snow melt or discharge by others into the storm drain system).

2. Next month, collect a sample at CB-88 (just upstream of 002A, but just downstream of the pump chamber and where the treatment plant discharge enters the storm drain system) at the same day and approximate time that the 002A sample and other outfall samples are being collected. If no TCE is detected at CB-88, but is detected at 002A, it would demonstrate that the TCE at 002A is most likely from groundwater infiltrating to the storm drain between CB-88 and 002A.

